

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 17 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Trifluralin Registration Standard Followup. DEB Response to Elanco Letter Dated 7/21/89. No MRID Number. No DEB Number.

FROM: Stephanie H. Willett, Chemist *SHW*
Tolerance Petition Section 2
Dietary Exposure Branch
Health Effects Division (H7509C)

THRU: Debra F. Edwards, PhD, Section Head *Debra Edwards*
Tolerance Petition Section 2
Dietary Exposure Branch
Health Effects Division (H7509C)

TO: Lois Rossi, Chief
Reregistration Branch
Special Review and Reregistration Division (H7508C)

Background

Trifluralin is a herbicide with several registered uses. The Registration Standard for trifluralin was issued in 1987 where several residue chemistry data gaps were cited. Additional information and data were requested concerning plant and animal metabolism. Additional residue data from field trials were requested in order to assess the magnitude of the residue on various commodities. Dynamac, under the supervision of DEB, recently reviewed plant metabolism studies submitted by Elanco as a partial response to the data gaps cited in the Registration Standard. It was concluded that additional plant metabolism work is needed (see cover memo of E.T. Haeberer dated 10/6/89).

Conclusions

1. If the registrant wishes to propose a group tolerance for root and tuber vegetables, radish field trials need only be conducted in California and Florida. Four trials will be adequate.
2. Since data are only required for potato processed commodities

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in order to determine if food/feed additive tolerances are needed, geographic representation is not necessary. A single field trial resulting in measurable weathered residue in the raw agricultural commodity will provide adequate samples for processing.

3. For sugar beets, only processing data are needed. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing.
4. If the registrant wishes to propose a group tolerance for the bulb vegetables, the location and quantity of field trials planned for green onions are adequate.
5. A single field trial resulting in measurable weathered residues in soybeans will provide adequate samples for the required processing study.
6. If the registrant wishes to propose a group tolerance for the cucurbit vegetables, the location and quantity of field trials planned for summer squash are adequate.
7. Since data for citrus are required only on probable trifluralin residue levels in citrus process products to determine if food/feed additive tolerances are needed, geographic representation is not necessary. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing.
8. If the registrant wishes to propose a tolerance for the stone fruits group, the location and quantity of field trials planned for cherries are adequate.
9. The proposed field trial locations and quantity for field corn are adequate.
10. A single field trial resulting in measurable weathered residues in both sorghum and wheat will provide adequate samples for processing.
11. The field trials proposed for corn forage, fodder, and straw are adequate.
12. The location and quantity of the proposed field trials for alfalfa and clover are adequate. However, data are required for clover only if the registrant wishes to propose a group tolerance for the non-grass animal feeds.
13. DEB recommends that at least one cotton trial each in Arizona and California be added to the proposed residue plan to

satisfy requirements for additional data on cotton forage. Cotton harvested from one of the four sites and bearing measurable weathered residues should be used in the required cotton processing study.

14. Residue data are needed from field trials where trifluralin is applied to the species of mustard grown for seed. Data cannot be translated from mustard greens or any other commodities. A minimum of two field trials should be conducted in any of the major areas which produce mustard seed.
15. The registrant is advised to conduct an additional field trial on peanuts in Florida, as specified in the Registration Standard.
16. A single field trials resulting in measurable weathered residues in peppermint will provide adequate samples for processing. Data may be translated to spearmint.
17. The location and quantity of the proposed field trials on sugarcane are adequate.
18. The location and quantity of the proposed field trials on sunflowers are adequate.
19. DEB recommends that at least two field trials be conducted in North Dakota and/or South Dakota to determine probable levels of trifluralin in flax straw. Alternately, a feeding restriction may be imposed. It is acceptable to translate processing data from cottonseed processed commodities to flax processed commodities.

Recommendations

DEB recommends that the registrant modify the proposed field trials as specified above conclusions 1, 2, 3, 5, 7, 10, 13, 14, 15, 16 and 19. Questions concerning the metabolism of trifluralin in plants should be adequately addressed before field trial data are submitted. The registrant is advised to insure that sample size, plot size, sampling techniques, and sample reduction are described in detail when field trial reports are submitted. Also, it may be necessary to apply exaggerated rates to obtain measurable weathered residues for processing studies.

Present Considerations

DEB has been requested to comment on plans for some field trials of trifluralin on various crops in a letter from Dennis Lade of Elanco, dated July 21, 1989. The data obtained from these field

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trials are intended to satisfy some of the data requirements concerning magnitude of the residue as outlined in the residue chemistry chapter of the registration standard, dated July 3, 1985. The field trials proposed trials by Elanco will be given below, followed by DEB's comments.

Root and Tuber Vegetables

Elanco plans to conduct trials on radishes in California (2), Florida (2), and Michigan for a total of 5 field trials.

For potatoes, trials are planned in Idaho, California, North Dakota, Washington, Maine, Minnesota, Wisconsin, and Colorado or Michigan. One trial will be conducted in each state, for a total of 8 trials.

For sugar beets, trials are planned in California, Minnesota, Idaho, North Dakota, and Michigan. One trial will be conducted in each state, for a total of 5 trials.

DEB Comments


If the registrant wishes to propose a group tolerance for the root and tuber vegetables, the Registration Standard requires data on radishes. According to current information available, radish field trials need only be conducted in California and Florida. Four trials will be adequate.

The Registration Standard indicates that the 0.05 ppm tolerance on potatoes is adequately supported by residue data already available. Since data are only required for potato processed commodities in order to determine if food/feed additive tolerances are needed, geographical representation is not necessary. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing.

For sugar beets, the situation is similar. The sugar beet tolerance is adequately supported, and data from sugar beet processed commodities only are needed thereby eliminating the need for geographical representation. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing.

Bulb Vegetables

A total of three trials will be conducted on green onions in California, Texas and Arizona.



DEB's Comments

If the registrant wishes to propose a group tolerance for bulb vegetables, data on green onions are needed. The location and quantity of field trials planned are adequate.

Legume Vegetables

A total of two field trials in Illinois, and Iowa or Missouri are planned for soybeans.

DEB's Comments

Since a tolerance of 0.05 ppm on the RAC is adequately supported by data already available and only processing study data are needed, geographical representation is not necessary. A single field trial resulting in measurable weathered residue in the raw agricultural commodity will provide adequate samples for processing.

Cucurbit Vegetables

Field trials on summer squash are planned in Florida, California, Texas, New Jersey or New York, and Georgia (1 per state).

DEB's Comments

If the registrant wishes to propose a group tolerance for the cucurbit vegetables, the Registration Standard requires residue data on summer squash. The location and quantity of the field trials planned are adequate.

Citrus Fruits

Field trials for citrus are planned for California and Florida (1 per state).

DEB's Comments

Since data are only required on probable trifluralin residue levels in citrus process products to determine if food/feed additive tolerances are needed, geographic representation is not necessary. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing.

Stone Fruit

A total of 5 field trials on cherries are planned. The pesticide will be applied to sweet varieties in Washington, Michigan and California, and to sour varieties in Michigan and New York.

DEB's Comments

If the registrant wishes to propose a group tolerance for the stone fruits, additional residue data on cherries are required. The location and quantity of field trials planned are adequate.

Cereal Grains

A total of 3 field trials on field corn are planned in Ohio, Iowa, and Illinois. Two trials on sorghum will be conducted in Texas, and Kansas or Missouri. Two field trials on wheat are planned for Kansas or Missouri, and Minnesota or North Dakota.

DEB's Comments

The Registration Standard concluded that the established 0.05 ppm tolerance on corn is inadequately supported. Additional residue data on field corn treated "over the top" from trials in Iowa, Illinois and Ohio were specifically requested. These data are also needed to support a crop group tolerance on cereal grains. Data are also needed on residue levels in corn processed commodities. The proposed field trial locations and quantity are adequate.

The Registration Standard concluded that data on residues in sorghum and wheat processed commodities are needed. A single field trial resulting in measurable weathered residues in each raw agricultural commodity will provide adequate samples for processing.

Corn Forage, Fodder and Straw

See corn above.

DEB's Comments

Residue data in or on forage, fodder, and silage of field corn from trials in Iowa, Illinois, and Ohio are specified in the Registration Standard. These data may also be used to support a crop group tolerance on forage, fodder and straw of cereal grains. The proposed field trials are adequate.

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Nongrass Animal Feeds

A total of 5 field trials on alfalfa are planned. Residue levels in hay will be determined from trials conducted in California, Minnesota, and New York or Pennsylvania. Residue levels in seed will be determined from trials conducted in California and Minnesota.

Three field trials for clover are planned in California, Minnesota, and New York or Pennsylvania.

DEB's Comments

The Registration Standard requires additional data on alfalfa and specifies that the tests be conducted in California, Minnesota, and New York or Pennsylvania. Therefore, the location and quantity of the proposed field trials are adequate.

If the registrant wishes to propose a crop group tolerance for the non-grass animal feeds, residue data on clover are needed. The location and quantity of the proposed field trials are adequate.

Cotton

Two field trials are planned for cotton in Mississippi and Texas.

DEB's Comments

The established tolerance on cottonseed is adequately supported. However, residue data for cotton forage are needed. DEB recommends that at least one trial in Arizona and California be added to the proposed residue plan. Cotton harvested from one of the four sites bearing measurable weathered residues should be used in the required cotton processing study.

Mustard

Elanco plans to evaluate and utilize existing data.

DEB's Comments

The Registration Standard states that a tolerance has neither been proposed nor established for residue of trifluralin in or on mustard seed. It was recommended that the registrant eliminate the use directions for mustard grown for seed on the relevant labels, or propose a tolerance for residues in or on mustard seed.

DEB concludes that residue data are needed from field trials where trifluralin is applied to the species of mustard grown for seed. Data cannot be translated from mustard greens or any other

commodities. A minimum of two field trials should be conducted in any of the major areas which produce mustard seed.

Peanuts

Two field trials are planned for Georgia and Texas.

DEB's Comments

The Registration Standard concluded that the present tolerances on peanut meat and hulls is adequately supported, but that data on residue levels of trifluralin in peanut vines and hay would be needed. Also, data are needed on residue levels in peanut processed commodities in order to assess the need for food/feed additive tolerances.

The registrant is advised to conduct an additional field trial in Florida, as specified in the Registration Standard.

Peppermint and Spearmint

The registrant intends to conduct 2 field trials on peppermint in Oregon or Washington, and Indiana or Wisconsin.

DEB's Comments

The Registration Standard requires data on peppermint oil and spent hay since data previously submitted were obtained from the processing of peppermint hay samples which did not contain detectable residues. A single field trial resulting in measurable weathered residues in the raw agricultural commodity will provide adequate samples for processing. Data may be translated to spearmint.

Sugarcane

Two field trials on sugarcane are planned for Louisiana and Texas.

DEB's Comments

The data presently available are insufficient to determine residue levels in sugarcane forage and sugarcane processed commodities. Data obtained from the field trials proposed by the registrant should adequately address the data requirements for sugarcane as outlined in the registration standard.

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Sunflowers

The registrant plans to conduct 2 field trials on sunflowers in Minnesota and North Dakota.

DEB's Comments

The established tolerance of 0.05 ppm on sunflower seeds is adequately supported. No data were submitted and no tolerance has been established for residues in or on sunflower forage and processed commodities. The location and quantity of the proposed field trials are adequate.

Flax

The registrant wishes to translate data from cottonseed to flax.

DEB's Comments

The available data support the established tolerance of 0.05 ppm in or on flax seed. No data were submitted for flax straw and there are no feeding restrictions. Also, since residues were detected in or on samples of flax seed, processing data are required. The Registration Standard specifies that additional trials be conducted in North Dakota or South Dakota.

DEB recommends that at least two field trials be conducted in North Dakota and/or South Dakota to determine probable levels of trifluralin in flax straw. Alternatively, a feeding restriction may be imposed. It is acceptable to translate processing data from cottonseed processed commodities to flax processed commodities.

cc: Trifluralin Registration Standard, RF, Circ., Willett, PMSD/ISB
H7509C:CM2:RM810:X1439:SHWillett:shw-10/16/89
RDI: D. Edwards, 10/17/89; R. Loranger, 10/17/89

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